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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,510	05/08/2006	Nobuyuki Suda	127956	9430
25944	7590	05/22/2008		
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER DEFRANK, JOSEPH S	
			ART UNIT 3724	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,510	<b>Applicant(s)</b> SUDA, NOBUYUKI	
	<b>Examiner</b> JOSEPH DEFRANK	<b>Art Unit</b> 3724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                 |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                            | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5-8-06</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet **within the range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

On page 3, line 6 (paragraph 8 line 2) there is a moment of awkward wording. The phrase "one of shafts" is somewhat confusing. Examiner recommends using the phrase "one of two shafts" or "one of multiple shafts".

On page 4, line 11 (paragraph 11) "thus" should be capitalized and be "Thus".

Appropriate correction is required.

***Drawings***

5. Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "24" (figure 3). Examiner is not sure what this numeral is meant to reference either. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 2 states the limitation "one of shafts which are eccentrically arranged relative to each other... a plurality of piercing needles are arranged on the other of the shafts" is unclear as to the arrangement. As noted above, this is awkward wording that is unclear to the reader. Examiner recommends the following language: "A piercing device wherein an outer tube is rotatably supported on a first shaft, a plurality of piercing needles are supported on a second shaft, wherein the first shaft and second shaft are eccentrically arranged relative to each other." Examiner also points out that the phrase "wherein said piercing needles and further piercing needles" is not clear.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art figure 7 (hereafter APA) in view of Wisner (US 3,747,447).

12. With respect to claim 1, APA discloses a piercing device wherein an outer tube (91) is rotatably supported on one of shafts (94, 95), which are eccentrically arranged relative to each other, so that it can be driven for rotation, wherein a plurality of piercing needles (93) are arranged on the other of the shafts in said outer tube, said plurality of piercing needles being spaced from each other in a circumferential direction, and projecting radially outwards, each said piercing needle being adapted to be extended and retracted relative to an outer surface of the outer tube, via a through hole (96) formed in the outer tube, wherein a needle restraining member (needles are restrained by inner tube 92) is rotatably supported on said the other shaft, for transmitting torque (they transmit the rotational motion, and thus torque) to the piercing needles when driven for rotation, wherein said piercing needles are rotatably supported on said the other shaft via needle support members, respectively, and wherein said piercing needles and further piercing needles, which are rotatable integrally with the said piercing needles, are fixedly connected to said needle support members in an axial juxtaposition with each other. APA does not disclose the needles being independently rotatable (the needles rotate as a group).

Wisner discloses a perforator wherein perforating elements (55) are allowed to

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rotate a certain degree (see figure 9) on bearing assemblies (57) whole being rotated as a hole in order to allow the pins to enter and leave the workpiece in a vertical fashion to create "accurate reproductions of the shape of the perforating elements" (column 2 lines 15-18). Examiner notes that this is a solution to prevent "slashed trenches" (column 1 line 39) which are created when a piercing pin is used on a rotating piercing assembly but because of the extension, the pierced hole becomes elongated (column 1 lines 25-60). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the piercing apparatus of APA to allow the piercing needles to be individually mounted on a pivoting member (to permit individual rotation) in view of the teachings of Wisner in order to prevent "slashed trenches" from forming on the workpiece.

13. With respect to claim 2, APA discloses the piercing device wherein said outer tube and said needle support members are connected to a driving means for driving them at a constant speed. The needle support members are mounted on an inner tube (92) and the inner tube and outer tube complete the same number of rotations per minute.

14. With respect to claims 3 and 4, APA discloses the piercing device wherein a rotating radius of said outer surface of the outer tube (91) and a rotating radius of a tip end of each said piercing needle are the same with each other (see positions C and A where the radii are the same; also note that at position B and 180 degrees from B the distance that 93 is protruding past the surface is the same distance as 93 is withdrawn at the opposite position) but does not explicitly disclose that the amount of eccentricity

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of said shafts is within a range of 10-15 mm. However, examiner notes that this dimension is dependent on the scale of the piercing device. If the piercing device is large and the dimensions are kept to scale, the amount of eccentricity will be proportionately large. If the piercing device is small and the dimensions are kept to scale, the amount of eccentricity will also be proportionately small. It would have been obvious to one having ordinary skill in the art at the time the invention was made to scale the device of APA up or down to have an eccentricity of 10-15 mm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In this case, the eccentricity is dependent on what is intended to be pierced. Obviously, the more eccentric the shafts are, the further the piercing elements will protrude. For a thicker material, a higher eccentricity is needed to fully pierce.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art of Boultinghouse and Schillo are noted as considered pertinent to the applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH DEFRANK whose telephone number is (571)270-3512. The examiner can normally be reached on Monday - Thursday; 9am-6pm EST.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Prone/  
Primary Examiner, Art Unit 3724

Joseph De Frank  
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